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INTERNATIONAL CONFERENCE ON DYNAMICAL PROCESSES IN THE
EXCITED STATES OF... (U) STANFORD UNIV CA DEPT OF
CHEMISTRY M D FAYER ET AL. 14 JUL 83 N00014-83-0-0116

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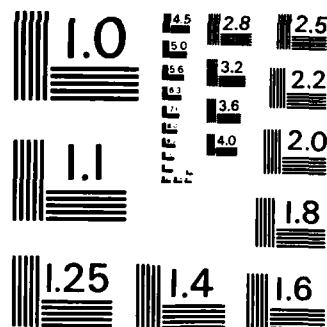
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FINAL REPORT ON
"Fourth International Conference on Dynamical Processes
in the Excited States of Solids"

AD-A135710

Stanford University, July 11-14, 1983

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Contract N00014-83-G-0116
NR-051-846

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Supported by: IBM
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PHILOSOPHY

This meeting aims to bring together scientists active in the field of dynamical processes in excited states of solids. The intent is to attract participants from related areas of physics and chemistry who do not normally attend the same meetings and create an informal atmosphere for free exchange of ideas and recent research results. Thus the conference on one hand is focused on excited state dynamics in solids, on the other hand it draws participants from diverse disciplines in physics and chemistry. The use of university campuses and student housing fosters the kind of atmosphere that this meeting is now known for.

PARTICIPANTS

The DPC-83 had a truly international nature with participants from 13 countries. A consequence of the Western U.S. location and the modest budget of this conference was that a majority (68%) of the participants were from the U.S. Many of these, and also a number from Europe, were students or post doctorals which is consistent with our desire to have significant participation by those active in doing the research. A summary of the countries of origin is given in Table I.

Table I
Participants at DPC-83 by Country

United States	90	Israel	2
W. Germany	10	Switzerland	2
France	6	Australia	1
Japan	6	Greece	1
The Netherlands	5	Ireland	1
U.K.	5	New Zealand	1
Canada	2		
TOTAL NUMBER OF PARTICIPANTS - 132			

The current plan to alternate the conference between North America and Europe will maintain a balance of active participation.

CONTENT

This was the fourth DPC conference, the first being held at the University of Georgia, U.S.A, in 1978, the second at the University of Wisconsin, U.S.A., in 1979 and the third at the University of Regensburg, W. Germany, in 1981. This year we increased the number of papers accepted on organic materials and included for the first time papers on semiconductors. Also new to this fourth DPC were poster sessions which accounted for about one half of the papers presented (see Table II). This was very successful and reduced the pressure on the oral sessions since a basic aim of this conference is to avoid the specialization that accompanies parallel sessions.

Table II

Distribution of Papers Presented at DPC-83 by Subject Matter *includes*

Inorganic Insulators	-	38
Organic Materials	-	22
Theory and General	-	16
Semiconductors	-	15
		<u>91</u>

Table II gives a breakdown of the 91 papers presented by subject matter. There were 41 oral presentations and 50 poster presentations. The number of papers per participant, 0.7, reflects the active role of those attending this meeting.

The application of laser techniques in spectroscopic studies continues to expand in keeping with the advancement of laser technology. This will drive the field of excited state dynamics for some time to come. Dynamics of excitons, not carriers in semiconductors and excitonic polaritons in the picosecond time scale were reported. Optical coherence studies using photon echo, optical free decay and nondegenerate four-wave mixing techniques were

presented and these techniques have promise of increasing applicability. On the other hand, there were fewer papers on fluorescence line narrowing. The semiconductor area was actively represented by papers on energy transport and localization both in bulk materials and two-dimensional hetero-structures.

A session was held on optical dephasing in glassy materials and this brought together the principal workers in this field for a lively and fruitful discussion. One problem that was highlighted was that different techniques holeburning, psec accumulated echo, fluorescence line narrowing, are not often done on the same glassy system so that direct comparison of results is difficult or impossible. Theoretical analysis of dephasing has always followed the experimental data. A broad range of experiments on a single material is called for.

A feature of DPC meetings has been a session on high frequency phonon dynamics. These phonons can be produced by laser pumping, heat pulses, or as reported at this conference, by point contacts. Stimulated emission of phonons in ruby was reported. This meeting provides an excellent forum for exchange between scientists working in phonon physics and laser spectroscopy.

FUNDING

This meeting had a relatively low budget and our philosophy was to provide partial support to enable key speakers to come, and require that they find their own support as well. Various levels of support were offered ranging from payment of the \$85 registration fee to a total grant of \$585 in three cases. A sharp division between invited and contributed papers was not made in the proceedings but the length of talks varied from 15 minutes to 40 minutes. In the future, having a higher level of funding in place earlier would facilitate

arrangements for speakers from Europe, for example. In only a small number of cases did we lose important speakers by not having enough support to offer them.

The next meeting is planned to take place at the University of Lyon, France in 1985.

Judging by the rate of progress in the field this will be another exciting meeting.

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Filename: DPCPART1
February 7, 1984

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